

IN THE CLAIMS:

1 1. (Currently Amended) A time managing apparatus that manages times clocked by
2 a plurality of timer modules in apparatuses connected to each other on a network, the time
3 managing apparatus comprising:

4 an information receiving means for receiving presetting information which
5 contains (i) event start time information that indicates a start time at which one or more events
6 should be started by two or more apparatuses on the network, and (ii) module identifier of the
7 timer module, and for each event, an apparatus identifier, identifying the apparatus that should
8 execute the event from outside;

9 a holding means for holding ~~event start time information that indicates an event~~
10 ~~start time at which one or more events should be started by two or more apparatuses on the~~
11 ~~network~~ the presetting information received by the information receiving means;

12 a time requesting means for requesting a timer module, which is identified by the
13 module identifier held by the holding means, to transmit a standard time;

14 a time receiving means for receiving the standard time, from the timer module
15 requested by the time requesting means, to transmit the standard time;

16 a judging means for judging whether the event start time is reached, by comparing
17 the received standard time, received by the time receiving means, with the event start
18 time, indicated by the event start time information held by the holding means; and

19 an instructing means, responsive to the judging means judging that the event start
20 time is reached, for identifying the two or more apparatuses, by apparatus identifiers held by the

21 holding means, and instructing the two or more apparatuses to start executing the one or more
22 ~~events when the judging means judges that the event start time is reached.~~

1 2. (Cancelled)

1 3. (Currently Amended) The time managing apparatus of claim 2 1, wherein
2 when the judging means judges that the event start time is reached, the instructing
3 means transmits triggers [for the one or more events] to the two or more apparatuses so that the
4 two or more apparatuses start executing the one or more events simultaneously.

1 4. (Currently Amended) The time managing apparatus of claim 2 1, wherein
2 the presetting information, received by the information receiving means and held
3 by the holding means, further contains, for each event, (a) event type information indicating an
4 event type and (b) ~~an apparatus identifier of an apparatus that should execute the event~~, and
5 when the judging means judges that the event start time is reached, the instructing
6 means transmits pieces of event type information ~~corresponding~~ which, held by the holding
7 means, corresponds to the one or more events to apparatuses having apparatus identifiers
8 corresponding to the one or more events, so that the apparatuses start executing the one or more
9 events simultaneously.

1 5. (Currently Amended) The time managing apparatus of claim ~~[[4]]~~ 3 further
2 comprising:

~~a presetting information receiving means for receiving presetting information from outside and getting the holding means to hold the received presetting information; and~~

a module identifier storage means for storing module identifiers by correlating the module identifiers with at least one of event type information and apparatus identifiers, the module identifiers being received by the ~~presetting~~ information receiving means together with the presetting information, wherein

if the ~~presetting~~ information receiving means receives at least one of a piece of event type information and an apparatus identifier together with the presetting information, without receiving a module identifier, the ~~presetting~~ information receiving means searches the module identifier storage means for a module identifier that correlates with the received piece of event type information and/or apparatus identifier, and if the ~~presetting~~ information receiving means finds such a module identifier, the ~~presetting~~ information receiving means allows the found module identifier to be selected automatically.

6. (Currently Amended) A time managing apparatus that manages times clocked by a plurality of timer modules in apparatuses connected to each other on a network, the time managing apparatus comprising:

a presetting information receiving means for receiving from outside (a) event start time information that indicates an event start time at which one or more events should be started by two or more apparatuses on the network, (b) ~~event type information indicating an event type for each of the one or more events, and~~ (e) apparatus identifiers of apparatuses that should execute the one or more events, and (c) a piece of management information that corresponds to the event start time and is used to manage a time clocked by a timer module;

10 a holding means for holding the event start time information, apparatus identifier,
11 and piece of management information received by the presetting information receiving means;
12 the time output requesting means for requesting the timer module corresponding
13 to the piece of management information held by the holding means to output a standard time;
14 a time receiving means for receiving [[a]] the standard time from [[a]] the timer
15 module, requested by the time output requesting means, to output the standard time;
16 a time managing means for managing the ~~received~~ standard time, received by the
17 time receiving means, by storing the standard time together with the piece of management
18 information held by the holding means, in correspondence with the timer module;
19 a presetting information transmitting means for transmitting, the ~~received~~ event
20 start time information and the piece of management information held by the holding means, and
21 ~~event type information~~ to the apparatuses that are identified by the ~~received~~ apparatus identifiers
22 held by the holding means;
23 a standard time acquisition request receiving means for receiving a standard time
24 acquisition request together with a piece of management information from each of the
25 apparatuses; and
26 a standard time transmitting means for transmitting ~~the standard time~~ to each of
27 the apparatuses, a standard time that is identified by the piece of management information
28 attached to the standard time acquisition request received by the standard time acquisition
29 request receiving means.

1 7. (Currently Amended) The time managing apparatus of claim 6, wherein

~~the time managing means manages the times clocked by the plurality of timer modules using different pieces of management information assigned to the plurality of timer modules;~~

the presetting information receiving means further receives a piece of management information that corresponds to the received event start time event type information indicating an event type for each of the one or more events,

~~the time receiving means receives a standard time from a timer module corresponding to the received piece of management information;~~ the holding means further holds the event information received by the presetting information receiving means, and

the presetting information transmitting means further transmits the ~~received piece of management information to the apparatuses~~ event type information held by the holding means,

~~the standard time acquisition request receiving means receives a standard time acquisition request and a piece of management information attached to the standard time acquisition request, from each of the apparatuses, and~~

~~the standard time transmitting means transmits, to each of the apparatuses, the standard time received from the timer module corresponding to the received piece of management information.~~

8. (Cancelled)

9. (Currently Amended) The time managing apparatus of claim 8 7 further comprising:

3 a management information storage means for storing the piece of management
4 information received by the presetting information receiving means, by correlating the piece of
5 management information with at least one of a piece of event type information and two or more
6 apparatus identifiers, wherein

7 if the presetting information receiving means receives at least one of a piece of
8 event type information and an apparatus identifier, without receiving management information,
9 the presetting information receiving means searches the management information storage means
10 for a piece of management information that correlates with the received piece of event type
11 information and/or apparatus identifier, and if the presetting information receiving means finds
12 such a piece of management information, the presetting information receiving means allows the
13 found piece of management information to be selected automatically.

1 10. (Currently Amended) A time managing apparatus that manages times clocked by
2 a plurality of timer modules in apparatuses connected to each other on a network, the time
3 managing apparatus comprising:

4 a presetting information receiving means for receiving from outside (a) event start
5 time information that indicates an event start time at which one or more events should be started
6 by two or more apparatuses on the network, (b) a module identifier of a timer module, (c) event
7 type information indicating an event type for each of the one or more events, and (d) apparatus
8 identifiers of apparatuses that should execute the one or more events;

9 a holding means for holding the event start time information, module identifier,
10 event type information, and apparatus identifier received by the presetting information receiving
11 means;

a time output requesting means for requesting the timer module which is
identified by the ~~received~~ module identifier, held by the holding means, to output a standard
time;

a time receiving means for receiving the standard time from the timer module;
and

a presetting information transmitting means for transmitting the ~~received~~ event
start time information, and event type information, and ~~transmitting the~~ standard time, held by
the holding means, to the apparatuses identified by the ~~received~~ apparatus identifiers held by the
holding means.

11. (Currently Amended) The time managing apparatus of claim 10 further
comprising:

a module identifier storage means for storing the received module identifier by
correlating the module identifier with at least one of a piece of event type information and two or
more apparatus identifiers, wherein

if the presetting information receiving means receives at least one of a piece of
event type information and an apparatus identifier, without receiving a module identifier, the
presetting information receiving means searches the module identifier storage means for a
module identifier that correlates with the received piece of event type information and/or
apparatus identifier, and if the presetting information receiving means finds such a module
identifier, the presetting information receiving means allows the found module identifier to be
selected automatically.

1 12. (Currently Amended) A time managing apparatus that manages times clocked by
2 a plurality of timer modules in apparatuses connected to each other on a network, the time
3 managing apparatus comprising:

4 a designation receiving means for receiving designation by a user of a timer
5 module among the plurality of timer modules, the timer module being ~~to be~~ used as a standard
6 timer module for synchronization;

7 a time requesting means for requesting the designated timer module to output a
8 standard time;

9 a time receiving means for receiving the standard time from the requested timer
10 module; and

11 a time transmitting means for transmitting the received standard time to the other
12 timer modules among the plurality of timer modules, excluding the timer module that output the
13 standard time, instructing the other timer modules to synchronize times thereof with the
14 transmitted standard time.

1 13. (Currently Amended) A time managing apparatus that manages times clocked by
2 a plurality of timer modules in apparatuses connected to each other on a network, the time
3 managing apparatus comprising:

4 a presetting information receiving means for receiving (a) event start time
5 information that indicates an event start time at which one or more events should be started by
6 two or more apparatuses on the network, (b) a piece of management information, and (c) event
7 type information indicating an event type for each of the one or more events, from an apparatus

8 that vicariously manages the times clocked by the plurality of timer modules using different
9 pieces of management information assigned to the plurality of timer modules;

10 a holding means for holding the received event start time information, piece of
11 management information, and event type information;

12 a time acquisition request transmitting means for transmitting to the apparatus a
13 time acquisition request with the received piece of management information attached thereto; a
14 time receiving means for receiving from the apparatus a standard time identified by the
15 transmitted piece of management information;

16 a judging means for judging whether the event start time is reached by comparing
17 the received standard time with the event start time indicated by the event start time information
18 held by the holding means; and

19 an executing means for starting to execute an event that is indicated by the event
20 type information held by the holding means when the judging means judges that the event start
21 time is reached.

1 14. (Currently Amended) A time managing apparatus that manages times clocked by
2 a plurality of timer modules in apparatuses connected to each other on a network, the time
3 managing apparatus comprising:

4 a time clocking means for clocking a local time for the time managing apparatus
5 itself;

6 a presetting information receiving means for receiving (a) event start time
7 information that indicates an event start time at which one or more events should be started by
8 two or more apparatuses on the network, (b) event type information indicating an event type for

each of the one or more events, from an apparatus on the network, the presetting information receiving means also continuously receiving a standard time from a time module;

a time difference calculating means for calculating a time difference between the local time received from the time clocking means and the standard time received by the presetting information receiving means;

a holding means for holding the received event start time information and type information and the time difference time calculated ~~time by the~~ difference calculating means;

a judging means for continuously judging whether the event start time is reached by continuously receiving the local time from the time clocking means, acquiring a corrected time by correcting the received local time using ~~the received local time and~~ the time difference held by the holding means, and comparing the ~~continuously~~ acquired corrected time with the event start time indicated by the event start time information held by the holding means; and

an executing means for starting to execute an event that is indicated by the event type information held by the holding means when the judging means judges that the event start time is reached.

15. (Currently Amended) A time managing method for a time managing apparatus that manages times clocked by a plurality of timer modules in apparatuses connected to each other on a network, the time managing apparatus comprising a recording medium, the time managing method comprising the steps:

a presetting information receiving step for receiving presetting information which contains (i) event start time information that indicates an event start time at which one or more events should be started by two or more apparatuses on the network, and (ii) a module identifier

8 of the time module, and for each event, an apparatus identifier of an apparatus that should
9 execute the event;

10 a holding ~~means~~ step for holding, in the recording medium, the presetting
11 information received by the presetting information receiving step; event start time information
12 ~~that indicates an event start time at which one or more events should be started by two or more~~
13 ~~apparatuses on the network, and the time managing method comprising:~~

14 a time requesting step for requesting a timer module, which is identified by the
15 module identifier held in the recording medium, to transmit a standard time;

16 a time receiving step for receiving the standard time, from the timer module
17 requested by the time requesting step, to transmit the standard time;

18 a judging step for judging whether the event start time is reached, by comparing
19 the received standard time with the event start time indicated by the event start time information
20 held in the recording medium; and

21 an instructing step responsive to the judging step judging that the event start time
22 is reached for identifying the two or more apparatuses by apparatus identifiers and instructing the
23 two or more apparatuses to start executing the one or more events. when the judging step judges
24 ~~that the event start time is reached.~~

1 16. (Currently Amended) A time managing method for a time managing apparatus
2 that manages times clocked by a plurality of timer modules in apparatuses connected to each
3 other on a network, the time managing ~~method~~ apparatus comprising[:]
4 a recording medium, the time managing method comprising the steps:

5 a presetting information receiving step for receiving from outside (a) event start
6 time information that indicates an event start time at which one or more events should be started
7 by two or more apparatuses on the network, ~~(b) event type information indicating an event type~~
8 ~~for each of the one or more events, and (c) apparatus identifiers of apparatuses that should~~
9 ~~execute the one or more events~~ and (c) a piece of management information that corresponds to
10 the event start time and is used to manage a time clocked by a time module;

11 a holding step for holding the event start time information, apparatus identifiers,
12 and piece of management information received by the presetting information receiving step;

13 a time output requesting step for requesting the timer module corresponding to the
14 piece of management information to output a standard time;

15 a time receiving step for receiving ~~[[a]]~~ the standard time from ~~[[a]]~~ the timer
16 module requested by the time output requesting step to output the standard time;

17 a time managing step for managing the received standard time by storing the
18 stored time together with the piece of management information, in correspondence with the timer
19 module;

20 a presetting information transmitting step for transmitting the ~~received~~ event start
21 time information and ~~event type~~ the piece of management information to the apparatuses that are
22 identified by the ~~received~~ apparatus identifiers;

23 a standard time acquisition request receiving step for receiving a standard time
24 acquisition request together with a piece of management information from each of the
25 apparatuses; and

26 a standard time transmitting step for transmitting ~~the standard time~~ to each of the
27 apparatuses a standard time that is identified by the piece of management information attached to

28 the standard time acquisition request received by the standard time acquisition request receiving
29 step

1 17. (Currently Amended) A time managing method for a time managing apparatus
2 that manages times clocked by a plurality of timer modules in apparatuses connected to each
3 other on a network, the time manager apparatus including a recording medium, the time
4 managing method comprising the steps:

5 a presetting information receiving step for receiving from outside (a) event start
6 time information that indicates an event start time at which one or more events should be started
7 by two or more apparatuses on the network, (b) a module identifier of a timer module, (c) event
8 type information indicating an event type for each of the one or more events, and (d) apparatus
9 identifiers of apparatuses that should execute the one or more events;

10 a holding step for holding, in the recording medium, the event start time
11 information, module identifiers, event type information, and apparatus identifiers received by the
12 presetting information receiving step;

13 a time output requesting step for requesting the timer module which is identified
14 by the ~~received~~ module identifier held in the recording medium to output a standard time;

15 a time receiving step for receiving the standard time from the timer module
16 requested by the time output requesting step to output the standard time; and

17 a presetting information transmitting step for transmitting the ~~received~~ event start
18 time information, and event type information, and ~~transmitting the~~ standard time, to the
19 apparatuses identified by the ~~received~~ apparatus identifiers held in the recording medium.

1 18. (Currently Amended) A time managing method for a time managing apparatus
2 that manages times clocked by a plurality of timer modules in apparatuses connected to each
3 other on a network, the time managing method comprising:

4 a designation receiving step for receiving designation by a user of a timer module
5 among the plurality of timer modules, the timer module being ~~to be~~ used as a standard timer
6 module for synchronization;

7 a time requesting step for requesting the designated timer module to output a
8 standard time;

9 a time receiving step for receiving the standard time from the requested timer
10 module; and

11 a time transmitting step for transmitting the received standard time to the other
12 timer modules among the plurality of timer modules excluding the timer module that output the
13 standard time, instructing the other timer modules to synchronize times thereof with the
14 transmitted standard time.

1 19. (Currently Amended) A time managing method for a time managing apparatus
2 that manages times clocked by a plurality of timer modules in apparatuses connected to each
3 other on a network, the time managing apparatus including a recording medium the time
4 managing method comprising the steps:

5 a presetting information receiving step for receiving (a) event start time
6 information that indicates an event start time at which one or more events should be started by
7 two or more apparatuses on the network, (b) a piece of management information, and (c) event

type information indicating an event type for each of the one or more events, from an apparatus that vicariously manages the times clocked by the plurality of timer modules using different pieces of management information assigned to the plurality of timer modules;

a holding step for holding, in the recording medium, the ~~received~~ event start time information, piece of management information, and event type information received by the presetting information receiving step;

a time acquisition request transmitting step for transmitting ~~to the apparatus~~ a time acquisition request with the received piece of management information attached thereto;

a time receiving step for receiving from the apparatus a standard time identified by the transmitted piece of management information;

a judging step for judging whether the event start time received in the time receiving step is reached by comparing the received standard time with the event start time indicated by the event start time information; and

an executing step for starting to execute an event that is indicated by the event type information ~~held by the holding step~~ when the judging step judges that the event start time is reached.

20. (Currently Amended) A time managing method for a time managing apparatus that manages times clocked by a plurality of timer modules in apparatuses connected to each other on a network, the time managing apparatus ~~comprising~~ including a recording medium and

a time clocking means for clocking a local time for the time managing apparatus itself, and

the time managing method comprising~~[[:;]]~~ the steps:

7 a presetting information receiving step for receiving (a) event start time
8 information that indicates an event start time at which one or more events should be started by
9 two or more apparatuses on the network, (b) event type information indicating an event type for
10 each of the one or more events, from an apparatus on the network, the presetting information
11 receiving step also continuously receiving a standard time from a time module;

12 a time difference calculating step for calculating a time difference between the
13 local time received from the time clocking means and the standard time received by the
14 presetting information receiving step;

15 a holding step for holding in the receiving medium, the ~~received~~ event start time
16 information and type information received in the presetting information receiving step and the
17 ~~calculated~~ time difference calculated by the difference calculating step;

18 a judging step for continuously judging whether the event start time is reached by
19 receiving the local time from the time clocking ~~means~~ step, acquiring a corrected time by
20 connecting the received local time using ~~the received local time and~~ the time difference held in
21 the recording medium, and comparing the ~~continuously~~ acquired corrected time with the event
22 start time indicated by the event start time information; and

23 an executing step for starting to execute an event that is indicated by the event
24 type information ~~held by the holding means~~ in the recording medium when the judging ~~means~~
25 step judges that the event start time is reached.

1 21-26. (Cancelled)

1 27. (New) An apparatus comprising a machine readable medium containing
2 instructions which, when executed by a machine, cause the machine to perform operations
3 comprising:

4 receiving presetting information, which contains, as a pair, (i) event start time
5 information that indicates an event start time at which one or more events should be started by
6 two or more apparatuses on the network and (ii) a module identifier of the timer module and for
7 each event, an apparatus identifier of an apparatus that should execute the event, from outside;

8 holding the presetting information received;

9 requesting a timer module, which is identified by the module identifier being held
10 to transmit a standard time;

11 receiving the standard time from the timer module requested to transmit the
12 standard time;

13 judging whether the event start time is reached, by comparing the standard time
14 received with the event start time indicated by the event start time information; and

15 responsive to the judging step judging that the event start time is reached,
16 identifying the two or more apparatuses by apparatus identifiers being held and instructing the
17 two or more apparatuses to start executing the one or more events.

1 28. (New) An apparatus comprising a machine readable medium containing
2 instructions which, when executed by a machine, cause the machine to perform operations
3 comprising:

4 receiving from outside (a) event start time information that indicates an event start
5 time at which one or more events should be started by two or more apparatuses on the network,
6 (b) apparatus identifiers of apparatuses that should execute the one or more events, and (c) a
7 piece of management information that corresponds to the event start time and is used to manage
8 a time clocked by a timer module;

9 holding the event start time information, apparatus identifiers, and piece of
10 management information received;

11 requesting the timer module corresponding to the piece of management
12 information being held;

13 receiving the standard time from the timer module requested to output the
14 standard time;

15 managing the standard time received by storing the standard time together with
16 the piece of management information being held, in correspondence with the timer module;

17 transmitting the event start time information and the piece of management
18 information being held to the apparatuses that are identified by the apparatus identifiers being
19 held;

20 receiving a standard time acquisition request together with a piece of management
21 information from each of the apparatuses; and

22 transmitting, to each of the apparatuses a standard time that is identified by the
23 piece of management information attached to the standard time acquisition request.

1 29. (New) An apparatus comprising a machine readable medium containing
2 instructions which, when executed by a machine, cause the machine to perform operations
3 comprising:

4 receiving from outside (a) event start time information that indicates an event start
5 time at which one or more events should be started by two or more apparatuses on the network,
6 (b) a module identifier of a timer module, (c) event type information indicating an event type for
7 each of the one or more events, and (d) apparatus identifiers of apparatuses that should execute
8 the one or more events;

9 holding the event start time information, module identifier, event type
10 information, and apparatus identifiers received;

11 requesting the timer module, which is identified by the module identifier being
12 held to output a standard time;

13 receiving the standard time from the timer module; and

14 transmitting the event start time information, event type information, and standard
15 time being held to the apparatuses identified by the apparatus identifiers being held.

1 30. (New) An apparatus comprising a machine readable medium containing
2 instructions which, when executed by a machine, cause the machine to perform operations
3 comprising:

4 receiving designation by a user of a timer module among the plurality of timer
5 modules, of the timer module to be used as a standard timer module for synchronization;

6 requesting the designated timer module to output a standard time;

7 receiving the standard time from the requested timer module; and
8 transmitting the received standard time to the other timer modules among the
9 plurality of timer modules excluding the timer module that output the standard time, and
10 instructing the other timer modules to synchronize times thereof with the transmitted standard
11 time.

1 31. (New) An apparatus comprising a machine readable medium containing
2 instructions which, when executed by a machine, cause the machine to perform operations
3 comprising:

4 receiving (a) event start time information that indicates an event start time at
5 which one or more events should be started by two or more apparatuses on the network, (b) a
6 piece of management information, and (c) event type information indicating an event type for
7 each of the one or more events, from an apparatus that vicariously manages the times clocked by
8 the plurality of timer modules using different pieces of management information assigned to the
9 plurality of timer modules;

10 holding the received event start time information, piece of management
11 information, and event type information;

12 transmitting a time acquisition request with the received piece of management
13 information attached thereto;

14 receiving a standard time identified by the transmitted piece of management
15 information;

16 judging whether the event start time is reached by comparing the received
17 standard time with the event start time indicated by the event start time information being held;
18 and
19 starting to execute an event that is indicated by the event type information being
20 held when the judging means judges that the event start time is reached.

1 32. (New) An apparatus comprising a machine readable medium containing
2 instructions which, when executed by a machine, cause the machine to perform operations
3 comprising:
4 clocking a local time for the time managing apparatus;
5 receiving (a) event start time information that indicates an event start time at
6 which one or more events should be started by two or more apparatuses on the network, (b) event
7 type information indicating an event type for each of the one or more events, from an apparatus
8 on the network, the presetting information receiving means also continuously receiving a
9 standard time from a time module;
10 calculating a time difference between the local time and the standard time;
11 holding the received event start time information and type information and the
12 calculated time difference time;
13 continuously judging whether the event start time is reached by continuously
14 receiving the local time, acquiring a corrected time by correcting the received local time using
15 the time difference being held, and comparing the acquired corrected time with the event start
16 time indicated by the event start time information being held; and starting to execute an event

- 17 that is indicated by the event type information being held when it has been judged that the event
- 18 start time is reached.